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AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES OF AMERICA A. I. D. MISSION
TO EL SALVADOR
C/O AMERICAN EMBASSY.
SAN SALVADOR, EL SALVADOR, C. A.

ACTION MEMORANDUM FOR THE DIRECTOR

FROM: PRO, Gordon A. Straub *[Signature]*
SUBJECT: Project Assistance Completion Report for Project No. 519-0303, Water Management - GOES.

BACKGROUND: In accordance with Handbook 3, Chapter 14, and USAID/El Salvador policy, attached is the Project Assistance Completion Report (PACR) for the Water Management (GOES) Project (519-0303) which was a Grant Agreement with the Government of El Salvador (GOES). The project terminated on schedule on August 31, 1992.

The PACR summarizes accomplishments of the project, including its final evaluation and orderly close out. There are no outstanding actions.

RECOMMENDATION: That you approve the attached Project Assistance Completion Report.

Approved: *[Signature]*

Disapproved: _____

Date: 4/15/96

Drafted by: RCristales, PRO *[Signature]*
Cleared by: TRCornick, PRO *[Signature]*
PKranstover, SDO *[Signature]*
CAdams, CONT *[Signature]*
LMcGhee, OCG *[Signature]*
MWilliams, RLA *[Signature]*
KCellis, D/DIR *[Signature]*

Date 12/07/95
Date 12/11/95
Date 4-8-96
Date 12/14/95
Date 12/15/95
Date 4/19/96
Date 15/Apr/96

Office of the Comptroller

REVIEWED

[Signature] 12/13/95
DATE CL11-7/14

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PROJECT ASSISTANCE COMPLETION REPORT

PROJECT USAID No. 519-0303

WATER MANAGEMENT - GOES

I. SUMMARY OF THE PROJECT

The Water Management Project was authorized on August 26, 1985, encompassing a grant to the Salvadoran Foundation for Economic and Social Development (FUSADES) and a grant to the Government of El Salvador (GOES), with a planned life of the Project of 60 month from the date of initial obligation and a total Life of Project funding of \$18,744,000 for three components: (1) WMS II Project Support Activities (\$730,000) (3.9%), (2) GOES-Public Sector Irrigation Development (\$4,563,000) (24.3%), and (3) FUSADES-Private Sector Irrigation Development (\$13,450,000) (71.8%).

The Project consisted of technical and financial support to develop the capacity of El Salvador's private and public sectors to provide policy support, technical and credit assistance, technology transfer, and training services to producers, packers and exporters of irrigated, labor-intensive non-traditional agricultural products to extra-regional markets.

Component (3) was implemented under a Cooperative Agreement with FUSADES for which the Project Assistance Completion Date (PACD) was extended to September 30, 1991. This report deals only with components (1) and (2), the Project start-up activities Component and the Public Sector Component, which were elements of a Grant Agreement with the GOES for which the PACD was extended to August 31, 1992.

A. Goal and Purpose of the Project

The goal of the Project was to generate employment, income and foreign exchange for El Salvador. The purpose of the Project was to promote diversified, irrigated farming in El Salvador through institutional strengthening, technology transfer, training, and credit assistance.

B. Project Components

1. Water Management Synthesis II Project Support Activities.

WMS II, a central AID Project which was the source to provide quick access to expertise in irrigation development to USAID Missions, provided start-up assistance to the Project. WMS

II consultants carried out five preliminary studies before the arrival in country of the long term advisory teams. This assistance provided a preliminary analytical base for the Project. The five studies were as follows: 1) Evaluation of Existing Irrigation Systems, 2) Examination of Alternative Extension Approaches, 3) Farmer Attitudes and Irrigation needs, 4) Groundwater Survey, and 5) Role of Women in Irrigated Agriculture.

WMS II short term consultants also assisted the implementing agencies in the private and public sectors to procure the technical assistance and equipment required by the Project, and in general, provided technical orientation through short courses in El Salvador. The specific start-up activities were as follows: 1) Preparation of Public and Private Sectors RFP's for the Long Term Technical Assistance, 2) Assistance to the Irrigation Association in Pilot Design and Proposal Development, 3) Master Degree Placement and Equipment Procurement, and 4) Irrigation Policy Seminar and Technical Short Courses.

2. Public Sector Irrigation Development.

This component was implemented by the Ministry of Agriculture and Livestock (MAG) through the Center of Agriculture Technology (CENTA), the National School of Agriculture (ENA), the National Training Center (CENCAP), the General Directorate of Irrigation and Drainage (DGRD), the Agricultural Sector Planning Office (OSPA), and the Office of Water (OA) during the first four years of the Project, and through the Management Office of the Water Management Project (GEMA) during the Cristiani's Administration (Years 1998-1992). The technical assistance to these implementing Units was provided by United Schools of America Inc. (USA Inc.) as prime contractor, and by Agricultural Development Consultants, Inc. (AGRIDEC) as subcontractor.

The elements of this Component were: a) Extension and Training: CENTA, ENA, and CENCAP, b) Irrigation Planning: DGRD, OSPA and OA, and c) In-Country Training and Technology Transfer. A description of each element follows:

a. Extension and Training: CENTA, ENA, and CENCAP .

A long term team of four advisers was provided jointly to ENA and CENTA, their time was split between these two institutions. The team provided technical assistance to ENA in the curricula development of a B.S. degree in Irrigated Export Crop Agriculture, in support of ENA becoming National School of Agriculture at university level. The team developed and taught the basic courses for the BS degree in irrigated Agriculture Curricula at ENA, and selected ENA professors to be sent for

Masters Degree training and return to replace the advisers in their teaching responsibilities. The T.A. team provided technical assistance to CENTA in order to incorporate irrigated agriculture into CENTA's research and extension work, and trained extension and research personnel.

Both, CENTA and ENA, received microcomputers and video training equipment to upgrade the skills of their research and training personnel and for use in farmer training.

CENCAP facilities were upgraded with the addition of training equipment to improve its capability to provide logistical support to professional and farmer in-country training courses.

b. Irrigation Planning: DGRD, OSPA, and OA.

The Project provided to DGRD, OSPA, and OA with training, technical assistance and equipment to improve the irrigation planning, monitoring and evaluation functions of these institutions.

Long-term technical assistance in the form of an irrigation engineer specialized in planning was provided to coordinate a policy research activity and to provide in-service training to DGRD personnel in construction, operation and management of public sector irrigation projects.

Short-term technical assistance was provided to policy makers and key planners in the DGRD, OSPA, and OA. The short-term T.A. assisted with specific studies to improve planning and management of public irrigation projects.

Short-term international training was also provided to these planning institutions. The management and planning system of these institutions was upgraded by the installation of microcomputers and improved planning methodologies and software.

c. In-country training and technology transfer.

This element was divided into three areas: 1. Professional Training and Seminars. 2. Training Extenders, and 3. Training Farmers.

1. Professional Training and Seminars.

An intensive technical irrigation course was developed and offered several times during the life of the Project. This training was provided to technical and professional personnel in the public sector, particularly from ENA, CENTA, and DGRD, and was also made available to private

sector individuals engaged in diversified, irrigated exports crop production and marketing. Selected persons from OSPA, OA and the banking system institutions were also invited. The purpose of this course was to provide information, knowledge and field experience base for those who share responsibility for various aspects of facilitating the production, handling and marketing of diversified, irrigated export crops. Additional, intended outcomes for this course were: 1. Connect private sector personnel with counterparts in the public sector, 2. facilitate supportive relationship, and 3. enable ready access, in both sectors, to technical assistance resources available in each sector.

Seminars and other types of in-country professional training events for selected persons were developed by the T.A. team of the public sector. International training in U.S.A. and in other countries were provided to Project professional participants. In the public sector component, a total number of 240 professionals were trained, including: 72 CENTA's researchers; 65 ENA's faculty members, of which 2 were at M.S. Degree level; 62 DGRD's planners and irrigation technicians; and 41 OA and OSPA's planners.

2. Training Extenders.

The objective of this activity was to develop a cadre of individuals who can effectively extend knowledge of irrigated agriculture to farmers. Short courses in-country were provided to groups which included a cross section of individuals who interact with farmers in order to provide extenders with a view of the whole picture of irrigated agriculture. The courses were organized by the CENTA/ENA team and Salvadoran counterparts. International training in U.S.A. and in other countries were provided to Project field extension agents. In the Public Sector component, a total number of 229 CENTA's extension agents were trained.

3. Training Farmers.

The objective of this activity was to train a number of farmers who can then serve as a demonstration to other local farmers of the feasibility and benefits of irrigation. The farmers trained through this program were instructed during crop cycle long courses, including both lectures and educational parcel practices, which covered the entire spectrum of irrigated agriculture issues including: a) credit acquisition; b) plant, soil, and water relationships; c) irrigation structures and alternatives; d) crop selection; e) changes in cultivation patterns such as fertilizer applications, sowing, and harvesting schedules, use of chemicals, and labor requirements;

g) harvesting, packing and processing requirements; and h) marketing opportunities.

The participant farmers were identified by CENTA Extension Agents. The courses, which were offered throughout the life of the Project, focused on reaching key farmers who: a) were recognized and respected by neighboring farmers; b) were either extremely interested in adopting irrigated agriculture, or who were committed themselves to buy into an irrigated system, or who were already participating in an irrigation system but see an opportunity to improve their operations; and c) were leaders of farmer groups, cooperatives or "grupos solidarios". A total number of 1,618 farmers participated in this training.

II. FINANCIAL STATUS

A. Grant Financial Statement as of 09/30/95 (Annex I):

Element No.	Name	Total Obligat.	Disbursed Amount
1	WMS II SUPPRT TO PRJ/SHORT TERM TA \$	427,500.00	427,500.00
2	WMS II SUPPRT TO PRJ/PRJ. EVAL.	75,859.00	75,859.00
3	WMS II SUPPRT TO PRJ/INT. TRAINING	30,013.00	30,013.00
4	LONG TERM T.A.	2,049,556.00	2,049,556.00
5	SHORT TERM T.A.	983,036.00	983,036.00
6	LONG TERM TRAINING	163,458.00	163,458.00
7	SHORT TERM TRAINING	432,697.00	432,697.00
8	VEHICLES/EQUIPMENT	583,799.00	583,799.00
9	MATERIALS/SUPPLIES	23,316.00	23,316.00
10	CONTINGENCY	2,457.00	2,457.00
11	SCHOLARSHIP FUND	10,000.00	10,000.00
12	PERSONNEL	40,750.00	40,750.00
PROJECT TOTALS		\$ 4,822,441.00	4,822,441.00

B. Counterpart Contribution Summary as of 09/30/92 (Annex II):

Counterpart Contribution:	Planned:	\$ 6,406,500.00
	Actual:	\$ 9,788,550.00

III. PROJECT ACCOMPLISHMENTS

Project Status as of 09/30/92 (Annex II):

A. <u>Planned EOPS:</u>	<u>Progress to Date</u>
1. Salvadoran farmers adopt precision irrigation on approximately 2,500 has. for production on high labor, high value non-traditional export crops.	2,727 has.

Planned EOPS:		<u>Progress to Date</u>
2.	Salvadoran enterprises are utilizing FUSADES to engage in exporting non-traditional agricultural products to extra regional markets.	39
3.	Sixty private sector field agents trained and providing support services to farmers in precision irrigation technology.	45
4.	1,400 farmers applying skills in on-farm water management.	1,582

B. Major Outputs

	<u>Planned LOP</u>	<u>Accomplished</u>	<u>% Acc</u>
1. CENTA's extension agent:			
a) Trained	136	229	168
b) Providing services	50	83	166
2. Farmers trained in on farm water management and irrigated agriculture.	1,085	1,618	149
3. CENTA's researchers trained and incorporating irrigated agriculture into CENTA's research work.	40	72	180
4. Curriculum for B.S. Degree in irrigated agriculture developed at ENA.	1	1	100
5. ENA's staff trained			
a) M.S. Degree level	4	2	50
b) Short-term training	34	63	185
c) Teaching	26	37	142
6. DGDR planners and carrying out more cost effective irrig. planning, contracting and supervision of public irrig. construction.	54	62	115
7. OA and OSPA planners trained and carrying out more balanced planning of water resource use for agriculture.	22	41	186

IV. EVALUATIONS AND AUDITS

A. Evaluations

The Project's first evaluation was carried out by Checchi and Company Consulting, Inc., in November 1987, by a two person team, to examine selected design elements of the Project and determine if they should be reprogrammed; decisions were made and corrective action taken based upon the evaluation recommendations.

The second evaluation was performed by Development Assistance Corporation during March 1990 by a team of two outside specialists. In contrast with the first, this second evaluation noted that significant progress were made in almost every aspect of the Project.

B. Audits

The Private Sector Irrigation Development Component, the main component of the Project (71.8% of LOP funds), was audited by Price Waterhouse as part of a financial audit of the USAID El Salvador projects managed by FUSADES, including the Water Management Project at the end of 1991. The other two components, the WMS II Project Support Activities (3.9% of LOP funds), and the GOES-Public Sector Irrigation Development (24.3% of LOP funds), were not audited; the procurement process and payment of commodities, training, and services were directly managed by USAID/El Salvador.

V. SUMMARY OF LESSONS LEARNED

A. Lessons Learned

1. The Project's concepts are sound. There appears to be no viable alternative approach to significantly increase the demands for rural labor, and to promote increased non-traditional export. It is evident that the designers of the program did not properly assess the time and effort that would be needed to take farmers with no experience in intensive agriculture to full effectiveness in this type of production.

2. It is necessary to have very clear lines of authority and coordination between the public and private sectors before projects of this type are started.

3. It is not adequate to assign a high-level public administrator responsibility for such a complex program; this person's other responsibilities are too great to fulfill the needs of such a program.

4. There are clear links between the public and private sectors that must be sued as catalysts for the success of programs involving production and processing/packing for export. Mutual confidence and the will to collaborate are essential for both parties.

5. A broader technological approach with more emphasis on the importance of integrating factors of production and water use would have strengthened the overall Project.

6. The institutional capacity in El Salvador for carrying out the proposed activities and for implementing the reforms necessary for achieving the objectives was, and still is, weak. More emphasis should have been placed in the Project's design on improving inter-institutional coordination in both the public and private sectors. Establishing strong development strategies in support of clear program policies might have significantly improved overall progress.

7. Technology transfer is a slow process requiring access to the best available world-wide knowledge of production and marketing. Testing under local situations and promotion of good technical packages is paramount for success. The extension technicians must have in-depth experience in production and meeting market demand for each commodity produced. Access to technologies developed in similar areas can speed technology transfer.

8. The technology of efficient surface irrigation is complex and requires considerable time, repetition of the basics, and patience on the part of extension agents to train both technicians and, through them, producers at the farm level.

PROJECT STATUS REPORT
April 1, 1992 - September 30, 1992

ANNEX II
MISSION DIRECTOR RATING A_B_C_

I. BACKGROUND DATA

Project Title: Water Management
Project Numbers: 519-0303
Date of Authorization: original 08/26/85 amendment 06/22/88
Date of Obligation: original 08/27/85 last amendment 08/31/87
PACD: original 08/31/90 amended to:
Public S. 08/31/92
Private S. 09/30/91

Implementing Agencies: Public Sector: Center for Agricultural Technology (CENTA), National School of Agriculture (ENA), National Training Center (CENCAP), Sectoral Planning Office (OSPA), Directorate General of Irrigation and Drainage (DGRD), The Office of Water (OA).
Private Sector: Salvadoran Foundation For Social and Economic Development (FUSADES).
Major Contractors: AGRIDEC (FUSADES). USA Inc./AGRIDEC (GOES).
AID Project Manager: Donnie E. Harrington, ANR (Private Sector)
Felix Rodolfo Cristales, ANR (Public Sector)
Status of CPs/Covenants: CPs to First Disbursement - All Met: 04/03/87
Covenants: Two Evaluations carried out.

Date of Last Evaluation: 03/15/90 Next evaluation: 00/00/00
Date of Last Audit: 12/01/91 Next audit: 00/00/00

II. RELATIONSHIP TO MISSION STRATEGIC OBJECTIVES

A. Specific Linkage to Strategic Objectives

A.1. Public Sector: S.O.No.2. Through institutional strengthening and training of MAG's extension agents, researchers, irrigation technicians and planners in order to provide improved technology transfer services and training to farmers, who under irrigated agriculture production will increase productive employment and increase exports. S.O.No.5. By technology transfer and training on: integrated pest management, and soil conservation.

A.2. Private Sector: S.O.No.2. Through institutional strengthening of FUSADES and technology transfer, training, and credit assistance to private sector's producers, processors, packers, and exporters will increase private investment, increase productive employment, and increase exports. S.O.No.5. By technology transfer and training on: integrated pest management and quality assurance program.

B. Percent of LOP Funds Relating to Strategic Objectives
S.O.No.2. 85% and S.O.No.5. 15%.

III. PROJECT PURPOSE AND DESCRIPTION

A. Project Purpose.

To promote diversified irrigated farming in El Salvador through institutional strengthening, technology transfer, training, and credit assistance.

FINANCIAL DATA

Amount Authorized:	Grant:	orig	\$18,744,000
Amount Obligated:	Grant:	orig	\$18,744,000
Amount Committed:	Period:		\$ 618,781
Cumulative:			\$18,310,794
Accrued Expend.:	Period - Projected		\$ 1,147,170
	Period - Actual		\$ 656,655
	Cumulative:		\$18,253,485
	Projected Next Sem.		\$ 0
Counterpart Contrib.	Planned:		\$ 6,406,500
	Actual:		\$ 9,788,550
% LOP elapsed:			100
% of Total Auth. Oblig.			100
% of Total Oblig. Expended			97.38
% of Total Auth. Exp.			97.38

B. Achievements to Date.

B.1. Public Sector: GOES's implementing institutions strengthened through the provision of long term and short term T.A., equipment and logistic financial support, and by the training of 229 extension agents, 72 researchers, 63 ENA's faculty members, two of them at M.S. Degree level, 62 irrigation technicians, and 41 planners. Irrigation legislation, policy, and MAG's development plans were reviewed. ENA's curriculum for BS Degree in irrigated agriculture implemented and 25 students graduated. GOES institutions provided technology transfer and training to 1618 farmers on irrigated agriculture small farmer production systems.

B.2. Private Sector: FUSADES strengthened through T.A., training, equipment and logistic financial support, and by the implementation of US \$ 10,735,000 Project line of credit. FUSADES provided technology transfer, training, and credit assistance to salvadoran farmers, who adopted precision irrigation on 2,727 Has. for production of high value non-traditional export crops (NTAE), with 882,000 person-days of labor created, and US \$ 16,121,000 value of the NTAE exports. 39 salvadoran enterprises utilized FUSADES to engage in exporting NTAE products to extra regional markets, and 45 private sector field agents were trained.

C. Project Description.

The Project consists of technical and financial support to develop the capacity of El Salvador's private and public sectors to provide policy support, technical and credit assistance, technology transfer, and training services to producers, packers, and exporters of irrigated, labor-intensive non-traditional agricultural products to extra-regional markets.

IV. PROJECT STATUS

A. Planned ECPS

Progress to Date

1. Salvadoran farmers adopt precision irrigation on approx 2,500 Has. for production of high labor, high value non-traditional export crops.	2,727 Has.
2. Salvadoran enterprises are utilizing FUSADES to engage in exporting non-traditional agricultural products to extra regional markets.	39
3. Sixty private sector field agents trained and providing support services to farmers in precision irrigation technology.	45
4. 1,400 farmers applying skills in on-farm water management and irrigated farming	1,582

B. Major Outputs

	Planned				Accomplished		
	LOP	This Sem.	Cum.	Next Sem.	This Sem.	Cum.	% of LOP
FUSADES							
1. Value of the exports of NTAE (000 \$)	-	0	24,800	0	0	16,121	N/A
2. Labor created (000 person-days)	-	0	1,856	0	0	882	N/A
3. Total credit approved (000 \$)*	10,735	0	10,735	0	0	10,735	100

* Figures relating to the Credit Line have been adjusted to reflect Colon devaluation.

GOES

1. CENTA's extensionists:							
a) Trained	136	50	136	0	216	229	168
b) Providing services	50	50	50	0	60	83	166
2. Farmers trained in on farm water management and irrigated agriculture	1,085	200	1,200	0	328	1618	149

B. Major Outputs

	Planned				Accomplished		
	LOP	This Sem.	Cum.	Next Sem.	This Sem.	Cum.	% of LOP
3. CENTA's researchers trained and incorporating irrigated agriculture into CENTA's research work.	40	40	40	0	68	72	180
4. Curriculum for B.S. Degree in irrigated agriculture developed at ENA	1	0	1	0	0	1	100
5. ENA's staff trained							
a) M.S. Degree level	4	0	2	0	0	2	50
b) Short-term training	34	20	34	0	63	63	185
c) Teaching	26	12	26	0	13	37	142
6. DGDR planners and Technicians trained and carrying out more cost effective irrig. project planning, contracting and supervision of public irrig. construction	54	20	54	0	52	62	115
7. OA and OSPA planners trained and carrying out more balanced planning of water resource use for agric.	22	20	31	0	37	41	186

C.1 Other Accomplishments and Overall Status:

1. CENTA's extensionists continued their in-country and in U.S.A. short-term training. 50 (men) participated in eight training courses in U.S.A. and 166 (5 women) participated in eighteen in-country training events. Five participants out of the 216 extensionists were women (3%).

2. 328 (20 women) farmers continue receiving training and technology transfer during the irrigation season from November 91 to May 92. During this reporting period they participated in complementary training events in on-farm water management and irrigated agriculture. 27 training parcels at farm level were used for extension agent and farmer training. 20 farmers out of the 328 were women (16%).

3. CENTA's researchers continued their in-country and in U.S.A. short-term training. 13 (2 women) participated in eight training courses in U.S.A. and 55 (nine women) participated in seventeen in-country training events. Eleven participants out of the 68 researchers were women (16%).

4. The ENA's curriculum for BS Degree in irrigated agriculture training continued. The second graduation ceremony during the life of the Project was in August 28, 1992. Seven students graduated in that date. The cumulate number of students graduated during the LOP is 25. The third group of students continued their academic training.

5. ENA staff members continued their in-country and in U.S.A. short-term training. 17 (2 women) participated in nine training courses in U.S.A. and 46 (5 women) participated in sixteen in-country training events. Seven participants out of the 63 ENA staff members were women (11%).

6. DGRD, OEDA and OSPA planners and technicians continued their in-country and in U.S.A. short-term training. 20 (2 women) participated in nine training courses in U.S.A. and 69 (men) participated in sixteen in-country training events. Two participants out of the 89 planners and technicians were women (2%).

7. Project final evaluation was done in 1990, based on which the Project was extended two years up to August 31, 1992.

8. Project close out activities initiated. Short term T.A. final vouchers and PIO/Pe budget amendments to reflect actual expenditures processed in order to liquidate Project budget elements eligible expenditures. Furniture and equipment that was procured for long term T. A. contractor's logistical support was donated to GOES-MAG implementing units.

C.2 Women in Development Issues

1. 20 women farmers (16% of total farmers trained) who are owners of irrigated parcels of land continue receiving training during this reporting period.

2. 25 women MAG technicians received training. The roles of these women in the Project were: five as CENTA extensionists, eleven as CENTA researchers, seven as ENA professors, and two as planners in OSPA and OEDA.

D. Problems and Delays

1. Update of Problem/Delays from previous SAR.

-Delay: Delay in the effort to draft a national irrigated agriculture strategy. The corrective action proposed was that ANR make determination on whether an Irrigation Study should be carried out utilizing PD&S funds. Status: Due to shortage of PD&S at the end of FY 92, ANR decided not to do study.

2. This period.

-None.

E. Major Activities or Corrective Actions During the Next 6 Months

1. Follow-on and close out of Project activities.